WHAT IS CLAIMED IS:

1. A solid state imaging device comprising:

channel regions of one conductivity type arranged to extend along a first direction in parallel to each other with predetermined intervals on one surface of a semiconductor substrate;

a plurality of drain regions of the one conductivity type at high density, which are arranged to extend along the first direction between adjacent channel regions;

a plurality of separation regions disposed in the interval between one of the channel regions and one of the drain regions; and

a plurality of transfer electrodes arranged in parallel to each other to extend along a second direction which intersects the first direction on the semiconductor substrate,

wherein the width of the separation region is narrower in a region beneath at least one transfer electrode in each predetermined set of transfer electrodes than in a region beneath the remaining transfer electrodes in the set of transfer electrodes.

2. A solid state imaging device according to claim 1, wherein

each set of a predetermined number of transfer electrodes among the plurality of transfer electrodes defines a single light receiving pixel in each of the plurality of channel

regions.

3. A method of driving a solid state imaging device comprising a plurality of channel regions arranged on one surface of a semiconductor substrate in parallel to each other and separated by predetermined intervals, a plurality of drain regions each provided between the adjacent channel regions, a plurality of separation regions each provided in an interval between one of the channel regions and one of the drain regions, and a plurality of transfer electrodes provided on the semiconductor substrate, the width of the separation region being narrower in a region beneath at least one transfer electrode in each predetermined set of transfer electrodes than in a region beneath the remaining transfer electrodes in the set of transfer electrodes,

the method comprising the steps of:

rising a first clock pulse to be applied to a transfer electrode which is formed on the part of the separation region having a narrower width in order to accumulate information charges in the channel region adjacent to the part of the separation region having the narrower width; and

applying a clock pulse which periodically changes potential to the plurality of transfer electrodes in order to transfer the information charges accumulated in the above accumulation step.

4. A method of driving a solid state imaging device

according to claim 3, further comprising, during the transfer step, the step of:

rising a second clock pulse to be applied to the drain region while the first clock pulse is held at high level in order to discharge a portion of the information charges accumulated in the accumulation step into the drain region and limit the amount of charges accumulation in the channel region.

5. A method of driving a solid state imaging device according to claim 3, further comprising the step of:

lowering the first clock pulse and rising the second clock pulse applied to the drain region in order to discharge the information charges accumulated in the accumulation step into the drain region.